

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

CARLSSON et al

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Group: unknown

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For: POWER DETECTOR WITH INCREASED DETECTION RANGE

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Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

In order to place the above-identified application in better condition for examination, please amend the application as follows:

IN THE CLAIMS

Please amend claims 1-10 and 12-18 as follows:

1. {AMENDED} Device for use in the detection of the power that passes through an electronic device, comprising means for division of the power that enters the device into a first and a second branch, each branch having a predetermined proportion of the total input power with a predetermined phase difference between the signals that go into the branches, further comprising a first power detector for the first branch, a second power detector for the second branch, and means for summation of the power in the two branches, characterized in that the first and the second power detectors are calibrated for different sub-ranges of a dynamic range within which it is desired to carry out the power detection, and in that the means for summation can be controlled with regard to which branch and thereby to which power detector the sum of the power is diverted, and in that the device comprises, in at least one of its branches, means for said control of the summator.

2. {AMENDED} Device according to claim 1, in which device the sub-ranges for which the first and the second power detectors are calibrated are overlapping.
3. {AMENDED} Device according to Claim 1, in which the means for division of the power and the means for summation both comprise a summator.
4. {AMENDED} Device Claim 1, in which at least one of the means for division of the power and the means for summation are designed in MMIC-technology.
5. {AMENDED} Device according to Claim 1, in which the means for controlling the summator comprises a controllable phase shifter.
6. {AMENDED} Device according to Claim 1, further comprising means for amplification in each branch of the device.
7. {AMENDED} Device according to Claim 1, comprising means for controlling the means for summation in both the first branch and the second branch.
8. {AMENDED} Device according to Claim 1, in which the electronic device for which the invention is used is a device for the transmission of electromagnetic energy.
9. {AMENDED} Device according to Claim 1, in which the electronic device for which the invention is used is a device for the reception of electromagnetic energy.
10. {AMENDED} Method for use for the detection of the power that passes through an electronic device, comprising division of the power that enters the device into a first and a second branch, each branch being given a predetermined proportion of the total input power with a predetermined phase difference between the signals that go into the

branches, further comprising user-defined detection of the power in the first branch and summation of the power in the two branches, user-defined detection of the power in the second branch, characterized in that the user-defined detection in the first and in the second branch are calibrated for different sub-ranges of a dynamic range within which it is desired to carry out the detection according to the method, and in that the summation is controlled with regard to which branch and thereby to which detection the sum of the power is diverted, and in that said control (120) of the summator is carried out via at least one of the branches.

12. {AMENDED} Method according to claim 10, in which the different sub-ranges of the user-defined detection in the first and in the second branch are overlapping.
13. {AMENDED} Method according to claim 10, according to which the division of the power and the summation of the power are carried out by means of a summator.
14. {AMENDED} Method according to claim 10, in which the control of the summator comprises phase shifting of the signal in one of the branches.
15. {AMENDED} Method according to Claim 10, further comprising amplification (160, 170) of the signals in each branch of the device.
16. {AMENDED} Method according to Claim 10, further comprising control of the summator via both the first branch and the second branch.
17. {AMENDED} Method according to Claim 10, in which the electronic device for which the method is used is a device for the transmission of electromagnetic energy.

18. {AMENDED} Method according to Claim 10, in which the electronic device for which the method is used is a device for the reception of electromagnetic energy.

REMARKS

The above amendments are made to place the claims in a more traditional format.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "Version With Markings To Show Changes Made."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please amend claims 1-10 and 12-18 as follows:

1. {AMENDED} Device [(100, 200)] for use in the detection of the power that passes through an electronic device, comprising means [(110)] for division of the power that enters the device into a first and a second branch, each branch having a predetermined proportion of the total input power with a predetermined phase difference between the signals that go into the branches, further comprising a first power detector [(140)] for the first branch, a second power detector [(150)] for the second branch, and means [(130)] for summation of the power in the two branches, characterized in that the first and the second power detectors are calibrated for different sub-ranges of a dynamic range [whithin] within which it is desired to carry out the power detection, and in that the means [(130)] for summation can be controlled with regard to which branch and thereby to which power detector [(140, 150)] the sum of the power is diverted, and in that the device comprises, in at least one of its branches, means [(120)] for said control of the summator.

2. {AMENDED} Device [(100,200)] according to claim 1, in which device the sub-ranges for which the first and the second power detectors [(140,150)] are calibrated are overlapping.

3. {AMENDED} Device [(100, 200)] according to Claim 1 [or 2], in which the means [(110)] for division of the power and the means [(130)] for summation both comprise a summator.

4. {AMENDED} Device [(100,200)] [according to any of the previous claims] Claim 1, in which at least one of the means [(110)] for division of the power and the means [(130)] for summation are designed in MMIC-technology.

5. {AMENDED} Device according to [any pf the previous claims] Claim 1, in which the means for controlling the summator comprises a controllable phase shifter [(120)].
6. {AMENDED} Device according to [any one of the preceding claims] Claim 1, further comprising means for amplification [(160, 170)] in each branch of the device.
7. {AMENDED} Device according to [any one of the preceding claims] Claim 1, comprising means for controlling the means for summation in both the first branch and the second branch.
8. {AMENDED} Device according to [any one of the preceding claims] Claim 1, in which the electronic device for which the invention is used is a device for the transmission of electromagnetic energy.
9. {AMENDED} Device according to [any one of the Claims 1-7] Claim 1, in which the electronic device for which the invention is used is a device for the reception of electromagnetic energy.
10. {AMENDED} Method for use for the detection of the power that passes through an electronic device, comprising division [(110)] of the power that enters the device into a first and a second branch, each branch being given a predetermined proportion of the total input power with a predetermined phase difference between the signals that go into the branches, further comprising user-defined detection [(140)] of the power in the first branch and summation [(130)] of the power in the two branches, user-defined detection [(150)] of the power in the second branch, characterized in that the user-defined detection in the first and in the second branch are calibrated for different sub-ranges of a [dymanic] dynamic range within which it is desired to carry out the detection according to the

method, and in that the summation is controlled with regard to which branch and thereby to which detection [(140, 150)] the sum of the power is diverted, and in that said control (120) of the summator is carried out via at least one of the branches.

12. {AMENDED} Method according to [any of claims 9-11] claim 10, in which the different sub-ranges of the user-defined detection in the first and in the second branch are overlapping.
13. {AMENDED} Method according to [any of claims 9-12] claim 10, according to which the division [(110)] of the power and the summation [(130)] of the power are carried out by means of a summator.
14. {AMENDED} Method according to [any of claims 9-13] claim 10, in which the control of the summator comprises phase shifting [(120)] of the signal in one of the branches.
15. {AMENDED} Method according to [any one of Claims 9-14] Claim 10, further comprising amplification (160, 170) of the signals in each branch of the device.
16. {AMENDED} Method according to [any one of Claims 9-15] Claim 10, further comprising control [(120)] of the summator via both the first branch and the second branch.
17. {AMENDED} Method according to [any one of Claims 9-16] Claim 10, in which the electronic device for which the method is used is a device for the transmission of electromagnetic energy.

18. {AMENDED} Method according to [any one of Claims 9-16] Claim 10, in which the electronic device for which the method is used is a device for the reception of electromagnetic energy.